SAFETY

TOOLBOX TALK

January 20, 2024

Working in the Cold

WORKING IN EXTREME COLD WEATHER:

OSHA does not have a specific standard that covers working in cold environments, employers have a responsibility to provide workers with employment and a place of employment that are free from recognized hazards, including cold stress and hazards, that are causing or are likely to cause death or serious physical harm to them (Section 5(a)(1) of the Occupational Safety and Health Act of 1970). Employers should, therefore, train workers on the hazards of the job and safety measures to use, such as engineering controls and safe work practices, and PPE which will protect workers' safety and health.

ISSUES:

There's no exact temperature that is legally deemed too cold for work. If temperatures dip into sub-zero territory or if the wind chill is below -17 degrees high-risk hazards or death are likely. The most likely are Hypothermia, Frostbite, Trench foot and Chilblains, all of which can be fatal.

SERIOUSNESS:

Cold weather and extreme exposure to the elements are the leading causes of death among all weather-related phenomena in the United States. Although illness from exposure to cold elements is preventable, every year, thousands become sick from occupational cold element exposure, and some cases are fatal. Most outdoor fatalities, 50% to 70%, occur in the first few days of working in cold environments because the body needs to build a tolerance to the cold elements gradually over time, and often protective PPE is not readily available. The process of building tolerance is called cold weather acclimatization. Lack of acclimatization represents a major risk factor for fatal outcomes.

OSHA GUIDELINES FOR SAFELY WORKING IN COLD WEATHER ARE:

- Know the symptoms of cold stress, reddening skin, tingling, pain, swelling, leg cramps, numbness, and blisters. Monitor your physical condition and that of your coworkers.
- Dress properly; wear at least three layers of loose-fitting clothing, insulated gloves, and boots, and cover your head.
- Stay dry and pack extra clothes; moisture can increase heat loss from the body.
- Take frequent breaks in warm, dry areas.
- Drink warm liquids. Thermos with non-caffeinated or non-alcoholic beverages the best "Soup."

WHAT YOU NEED TO KNOW:

1. How to recognize cold illnesses such as Hypothermia, Frostbite, Trench Foot, and Chilblain. These can all be life-threatening.
2. Dress
   - Always dress in layers with the outer layers loose and the inner layers tighter. This will trap the body's heat.
   - Use the outer layer of clothing as a windbreaker. This will make the layers underneath more effective.
   - Minimize sweat. If the worker gets hot, remove a layer of clothing.
   - Avoid getting your clothing wet. Once wet, the clothing will not serve as good protection from the cold.
   - Wear head protection. This will increase your overall warmth. Over half of the body's heat loss comes from the head.
   - Be sure to properly protect your feet. Unless you are moving around, your feet will feel the effects of the cold first. The best socks are Darn Tough Socks with antimicrobial protection, and 4-buckle overshoes can provide better protection.
   - Gloves are especially important. Most often a thin pair of wool gloves under a pair of leather gloves will provide the best protection.
   - A key is getting wool close to your body.
     - Suggested Layers: merino wool base layer.
     - Fleece is the next layer or worn close to your body.

- The top layer should be your trouser layer (work exposed area). In wet or windy conditions nylon is good at this level of protection.

Important Note - Cotton is the worst insulator for weather, especially if it gets wet externally (water) or internally (sweat).

3. Cold Stress and Extreme Weather Exposures Conditions and Explanations:
   - Cold Temperatures, Getting Wet and High Winds:
     - Cold and wet conditions make it harder for the body to keep its body temperatures up.
     - The length of time exposed to cold elements (low temperatures, wet conditions, and wind) is critical. Reference wind chill index above.
   - Intense Physical Activity Or Element Exposures:
     - Strenuous work or extensive exposure decreases the body's heat production by consuming excess energy and lowering the body's ability to maintain its core temperature.
   - Lack of Acclimatization:
     - Sudden exposure to cold temperatures without allowing the body to acclimate can increase the risk of cold stress illnesses and deaths.
   - Personal Factors:
     - Age, weight, fitness level, and underlying health conditions can affect an individual's susceptibility to cold stress illnesses and deaths.
   - Other Factors:
     - Medications: such as antihistamines, diuretics, blood pressure medications, and others.
   - Health Conditions:
     - Diabetes, obesity or obesity, high blood pressure, heart disease, and others.
   - Physical Characteristics:
     - Older age, lower levels of physical fitness, pregnancy, acclimatization status, (i.e., if you have built tolerance to working in cold conditions), and others.
   - Behavioral Characteristics:
     - Recent alcohol use, use of illicit drugs such as opioids, methamphetamine, and cocaine, a low intake of water, and others.
4. Remember your Wind Chill Factors.
5. Actions:
   - Call 911 immediately - then monitor the heart rate and breathing. If less than 6 breaths a minute, begin rescue breathing. If there are no signs of life, begin CPR.
   - Warm and dry the worker right away with dry clothes and/or cover with dry blankets.
   - If possible, move the person to a warmer or heated area. Avoid extreme heat changes. Warm the person slowly, starting with the core of the body. Offer warm (nonalcoholic) drinks.
   - Stay with the worker until help arrives.
6. Prevention Strategies.
   - Avoid wearing wet clothes.
   - Wear a hat or hood to help keep your whole body warmer.
   - Use a knit mask to cover your face and mouth (if needed).
   - Carry extra socks, gloves, hats, jackets, and a change of clothes.
   - Use insulated gloves to protect the hands (water resistant if necessary).
   - Wear insulated and waterproof boots (or other footwear).
   - Ensure that everybody knows the symptoms of cold stress.
   - Monitor your physical condition and that of your coworkers.
   - Take regular breaks to warm up when needed.
   - Dress properly for the cold (wool and fleece are preferred).
   - Staying dry in the cold because of moisture or dampness, e.g., from sweating, can increase the rate of heat loss from the body.
   - Keep extra clothing (including underwear) handy in case you get wet and need to change.
   - Drink warm sweetened fluids (no alcohol).
   - Avoid touching cold metal or wet surfaces with bare skin.
   - Use proper engineering controls, safe work practices, and (PPE)

"Winter Weather - Preparedness | Occupational Safety and Health Administration." Www.osha.gov, www.osha.gov/winter-weather/preparedness.

OSHA. "Heat - Overview: Working in Outdoor and Indoor Heat Environments | Occupational Safety and Health Administration." Www.osha.gov, www.osha.gov/heat-exposure.

"Working Safely in Cold Weather ." Osha.gov, www.osha.gov/sites/default/files/publications/OSHA3982.pdf. Accessed 23 Jan. 2025.

"Cold-Related Injuries/Illnesses, Symptoms, First Aid, Wind Chill Chart, Work/Warm-up Considerations | U.S. Fish & Wildlife Service." Www.fws.gov, 31 May 2018, www.fws.gov/policy-library/e2242fw10.

"Winter Weather - Cold Stress | Occupational Safety and Health Administration." Www.osha.gov, www.osha.gov/winter-weather/cold-stress.